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Tobacco Use Prevention Strategies

RESEARCH ARTICLE

Adolescents' Perceptions Regarding Effective Tobacco Use Prevention Strategies for their Younger Counterparts: A Qualitative Study in Malaysia

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Abstract

Purpose: The present qualitative study explored adolescents' perceptions regarding effective strategies to prevent adolescents from using tobacco products (TP). Apart from the commercial TPs, there has been emerging use of alternatives such as vapes, e-cigarettes and shisha. This unfortunate phenomenon continues despite the currently available preventive strategies. Thus, understanding of the perceptions of the current generation would be valuable to provide new insights. **Methods:** Purposive sampling was utilized to recruit 40 adolescents between the age of 15 and 16 years old attending public daily secondary schools. Eight focus group discussions were conducted among the TP users, ex-users and non-users. Data were analyzed using a thematic content analysis procedure with NVivo. **Results:** Among barriers with the currently available strategies were having teachers who smoke tobacco, addiction to nicotine and self-perceptions of being healthy. The content of any program should include knowledge on negative outcomes of using tobacco products and awareness of the legislation together with ways to overcome peer and family influence including improving self-efficacy and refusal skills. Strategies were suggested to be delivered using information technology which provides interactive learning and visual effects. **Conclusions:** Adolescents agreed that the content and delivery of tobacco use prevention strategies need to be revised to suit the current generation to ensure sustainability.

Keywords: Perception- adolescent- tobacco- prevention

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Introduction

Tobacco survives centuries of existence despite the known negative effects from its consumption. Tobacco use is an addiction owing to its active addictive ingredient namely nicotine which is capable of inducing impairment of mood control, cognition, social and emotional skill (Shonkoff et al., 2012; US Department of Health Human Services, 2014). On top of that, tobacco use is a social catastrophe, related to the use of alcohol, heroine, and other substances which eventually lead to substantial significant misconduct (Akers et al., 1979; Jessor, 1991; Akers, 1992). Moreover, WHO (2011) claims tobacco use as the leading global cause of preventable death which kills nearly 6 million people each year worldwide with 80% among those living in low- and middle-income countries (WHO, 2011b). Tobacco use related diseases, mainly cancer and cardiovascular diseases, are the main causes of premature death for the past three decades in Malaysia (Ministry of Health, 2011; Yusoff et al., 2013).

In view of the significant medical and psychosocial consequences of tobacco use and the known difficulty to quit once started owing to the addictive character, prevention and treatment of this disease has become a major industry. Malaysia spends up to RM 2.92 billion every year treating tobacco use related diseases (WHO, 2011a). Malaysia has integrated their efforts into the National Education Curriculum (Jamaliyah et al., 2012; Sopia et al., 2013), co-curriculum activities such as "The Young Doctor Club" and became a member of the WHO Framework Convention on Tobacco Control (FCTC) since 2005 (Ministry of Health and Ministry of Education, 2012). The FCTC is a scientific, technical and economical evidence-based treaty that stresses on protecting the public health especially among the developing countries. In a survey by the International Tobacco Control Southeast Asia Project (ITC-SEA) among more than 1000 adolescents, 69% of them admitted to have been thought about the danger of smoking during classes and 94.5% admitted to have noticed anti-smoking massages in the media (Zawahir et al., 2013).

In Asean countries, between the year 2005 and 2016, eight rigorously developed preventive strategies retrieved from the literature produced mixed outcome and focused only on cigarette smoking. In China, three of such studies were adapted from previous health education programs

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(Zheng et al., 2005; Chen et al., 2006; Chou et al., 2006) while one developed from the underlying social theories related to tobacco use initiation (Wen et al., 2010). All of the studies were school-based involving multiple sessions delivered by the researchers or the educators. The target groups were between 13 to 18 years old except for younger population by Tahlil et al (Tahlil et al., 2013a). All of the interventions managed to increase knowledge, attitude after 1 week to 6 months. Three of the studies reduced smoking initiation (Zheng et al., 2005; Lee et al., 2007; Bate et al., 2009). Improvement of the refusal skills were achieved in four studies (Chen et al., 2006; Lee et al., 2007; Bate et al., 2009; Wen et al., 2010).

Despite the efforts, reducing tobacco use among the youth remains a significant challenge (WHO, 2011b). Alarmingly, the prevalence among youth has been reported at similar rates of more than 20% in local epidemiological studies in Malaysia (Lim et al., 2006; Lim et al., 2010). According to the 2010 Global Youth Tobacco Survey, 16% of boys used tobacco products compared to only 6% among girls. (WHO, 2013). These figures are almost similar to the adults whereby 23.1% of them are cigarette smokers according to the 2011 Global Adult Tobacco Survey (GATS, 2011). Majority tobacco users initiate smoking during their teenage years (Hammond et al., 2008; WHO, 2013; Bauer and Kreuter, 2015). Local studies in Malaysia shows age of initiation between 11 to 14 years old (Lim et al., 2010; Lipperman-Kreda et al., 2014). Likewise, approximately 80% of tobacco users initiate the behavior before the age of 18 in the US (Centers for Disease Control & Prevention, 2012).

Existing strategies on tobacco use prevention for the youth mainly derived from social theories and perception of the educators including the parents (Killen, 1985; Thomas et al., 1996; Backinger et al., 2003; Shek and Yu, 2011; Lee, 2012; Tahlil et al., 2013a; Thomas et al., 2013). Despite the perception of the educators explored by Tahlil et.al, we believe the adolescents would have their own valuable view in which to our knowledge, have not been explored. The present qualitative study explores the adolescents' perception on effective strategies to prevent adolescents from using tobacco products. This is a stepping stone of an intervention study to develop a tobacco use prevention strategy for Malaysian adolescents.

Materials and Methods

Participants

Study participants were recruited from public daily secondary schools in urban and rural area of Kota Bharu District, State of Kelantan, Malaysia, among 15 to 16 years old students. Forty participants were selected using a purposive sampling method representing the tobacco users, ex-tobacco users and non-tobacco users (Centers for Disease Control and Prevention, 2012). The tobacco users are those who currently using tobacco products. Ex-tobacco users are tobacco users who have stopped using tobacco for the past six months. Non-tobacco users are those who denied ever trying cigarette or tobacco product. Participants were those selected by the school counselor or teacher and verbally consented to be enrolled. Written consent was obtained from the school headmasters through the Doctrine of In Loco Parentis. Participants were allowed to leave the session at any time during the session.

Instruments

Semi-structured interviews were utilised with the interview guide being constructed in Malay and delivered in local dialect to allow participants to express their ideas comfortably. The semi-structured interview guide were adapted from previous study among the educators by Tahlil et al. (2013b). The questionnaire by Tahlil et al. was chosen due the similar objective despite the difference in study population. Questions explored the following: 1) the barriers with the current strategies, 2) the content of an effective strategy, and 3) the delivery of an effective strategy. In addition, socio-demographic data was obtained prior to the interview.

Study design

The adolescents' perception was explored through a qualitative study involving eight focus group discussions. This research method was chosen as it is particularly useful in exploring attitudes, views, beliefs, feelings and behavior while allowing the feasibility of exchanging ideas and discussion (Chua, 2012).

FGD was done by the researcher, attended by a transcriber and audio recorded. The transcriber was selected based on language proficiency. There were four to eight participants per group. The smokers, ex-smokers or non-smokers sessions were done separately. Each session lasted for about one hour. The number of sessions was stopped when the data saturation was reached as observed by similar information obtained after two consecutive sessions. The data was triangulated by the types of participants. The smokers were selected to allow exploration on the elements which made them use tobacco products. The ex-smokers and non-smokers would offer the insights on the measures to prevent adolescents from using tobacco products. Moreover, the non-smokers would be able to provide specifically on their ability to avoid tobacco use.

Data analysis

Thematic analysis was done using NVivo 11 software (Braun and Clarke, 2006; Bazeley and Jackson, 2013). The data was then transcribed and imported into the NVivo 11 software. Subsequently, the researcher reviewed the interview transcripts thoroughly, identified the meanings of each response and classified them into nodes and child-nodes, which eventually condensed and developed into themes and subthemes.

Results

Characteristics of participants

A total of 40 participants were recruited in the study, 21 were from an urban located school and 19 from a rural located school. 16 of them were current tobacco users, 16 non-tobacco users and 8 were ex-tobacco users. All of the participants were male in the fourth class of secondary schools aged between 15 and 16 years old.

The thematic analysis

The thematic analysis of the interview transcripts constructed three themes: 1) barriers with the current strategies, 2) content of an effective strategy, and 3) delivery of an effective strategy.

1) Barriers with the current strategies

Among the barriers discussed during the FGD include having teachers who smoke tobacco. "If the teachers are smoking cigarettes, would be easy to teach the students not to smoke?", a group replied "difficult" (FGD current-users: urban).

Some of them felt that the prevention program attended was not clear leading to short-lasting effectiveness. Upon asking on the reason why they continue to use tobacco products despite attending the preventive program in primary school, they replied "the program was unclear and the effectiveness is temporary. We do not feel the effectiveness anymore once we attend the secondary school" (FGD ex-users: rural). Despite of not using tobacco products, the non-users described the effectiveness of currently available preventive programs as temporary: "the effect was only temporarily" (FGD non-users: urban). Addiction among those who have tried, the environmental influences with tobacco use being widely accepted and peers influence have been claimed to be the major factors contributing to the short-lasting effect of available preventive programs. Other barriers include the self-perception for being healthy; "they continue using tobacco product despite knowing the adverse effect because they had never experience the illnesses and feels healthy" (FGD ex-users: urban).

2) Content of an effective strategy

The content of an effective prevention program has been discussed in depth among all participants. Nine subthemes were recognized upon analysis.

a. Negative health outcomes

Information on negative health outcomes have been raised as one of the main issues in all FGDs. Questions imposed in this matter yielded many responses including: "tobacco use is dangerous and addictive" (FGD users: rural), "heart attack, asthma, difficulty breathing and die early" (FGD non-users: urban). A non-user from the rural area claimed witnessing his grandfather who was a heavy smoker died from heart attack disheartened him from using tobacco: " my grandfather was a heavy smoker and died from heart attack" (FDG non-users: rural).

The ex-users stressed on the knowledge of negative health outcome as an essential component in prevention strategy. In response to the question on what do we need to tell the non-users in terms of knowledge, they answered: "using tobacco products is of no avail the lips will turn black" (FGD ex-users: rural).

b. Peers influence

The role of peer influence was raised significantly: "choose friends properly" (FGD current-users: rural). "Choose your friends properly. Choose those who are clever in academic smoking friends persuade others to use tobacco product that is the main culprit" (FGD non-users: urban). "Give them advice on how to choose good friends and how to avoid bad friends choose the non-users and clever friends and avoid the tobacco users" (FGD ex-users: rural).

c. Religious education

Response on enquiries on the need to include religious education in the preventive strategy produced a mixture of response. Those in urban school seemed to not agreed with the suggestion; "No, it will not be effective" (FGD ex-users: urban),"very little effect no effect at all" (FGD non-users: urban). On the other hand, some of those from rural felt strengthening the religious value will be of value in prevention whereby advice to strengthen religious faith has been suggested as a component in the strategy: "Don't miss your daily prayer" (FGD users: rural). The importance of strong religious value was claimed to be associated with improvement in self-efficacy and eventually refusal skill. In response to question on how could you increase one's inner strength, they answered: "perform your daily prayer, recite Quran and fast" (FGD ex-users: rural).

d. Negative economic impact

Information on negative economic impact has also been agreed as an essential component. The tobacco users from the rural area would advise the younger adolescents against tobacco use as it will lead to wastage of the pocket money: " you will run out of money if you use tobacco product" (FGD current-users: rural),"do not smoke cigarette erm wasting money" (FGD non-users: rural and urban)," using tobacco is a waste of money" (FGD ex-users: rural).

e. Family value and parenting

The adolescents feel the significant others especially parents play an important role in prevention from using tobacco. Enforcing discipline and punishment by the parents were claimed to be effective in a few groups. In response to the question on what would they do if they see their own younger siblings tried to use tobacco product?", they replied "Inform father slap him tighten discipline" (FGD current-users: rural). Significant others seemed to be able to produce effective advice against tobacco use among the non-users from rural area: "mother said do not smoke cigarette"; "grandmother said do not smoke cigarette or else you would end up like grandfather my grandfather was a heavy smoker and died from heart attack mother said, using tobacco products would be degrading the family dignity" (FGD non-users: rural).

f. Legislation

Knowledge on tobacco use related legislations was claimed to be ineffective as a component of an effective prevention strategy. In response to the question on how do they feel on the effectiveness of current legislation, they answered: "not effective" (FGD non-users: urban). However, they do feel that the information on current legislation should be included in the intervention: "we should tell them about the legislations related to tobacco

use" (FGD non-users: rural). On top of that, information on the school punishments would be effective to warn the students: "could get public beating" (FGD ex-users: rural).

g. Self-efficacy

Importance of strengthening perceived self-efficacy which determines feelings, thoughts, self-motivation and behavior has been discussed in all focus group discussions. In response to question on how should the non-tobacco users react when offered, they answered: "they have to be emotionally strong and refuse" (FGD x-users: rural). Subsequent question on how to strengthened emotional control, they answered: " have to be strong avoid being friends with the users do not become close to them strive hard in your academic be smart" (FGD ex-users: rural).

h. Refusal skill

Enhancing refusal skill is considered as an important component in tobacco use prevention. In response to the questions on how to refuse offer from the users, the non-users answered "say 'NO' ignore the request and avoid being around them" (FGD non-users: urban). The skills to avoid influence are also essential: "give them advice on how to avoid being influenced" (FGD ex-users: rural).

i. Miscellaneous

Other useful information to the question on the content of an effective strategy include: "using tobacco is useless, people will hate you including the teachers" (FGD current-users: rural); "using tobacco will decrease your school academic performance wasting time polute the environment" (FGD non-users: urban); and "encourage alternative activities especially sports including futsal, football, jogging and roller blades" (FGD non-users: urban).

3) Delivery of an effective strategy

An effective delivery of the preventive strategy against tobacco use is essential in ensuring successful transfer of knowledge and skills. In response to the question on how should the knowledge on negative health outcomes from using tobacco product be delivered, they answered: "show them video live video on operation not reading materials games would be effective such as adventure, actions or strategy" (FGD current-users: rural), "show live evidence live operation live effects" (FGD ex-users: urban), "shooting games quizf cross-word puzzles acting sketch cartoons, moving objects" (FGD ex-users: rural), " produce video show experiment entertainment games puzzles video on refusal skills acting sketch with real people" (FGD non-users: urban),"videos with real people interview with people who had acquired tobacco use related illnesses acting sketch voices with subtitles games, quiz, cross-word puzzles give rewards" (FGD non-users: rural).

Discussion

The barriers with the current strategies

The adolescents in this study subjected having peers and teachers who smoke tobacco, the widespread use of tobacco products and self-perception for being healthy, as the barriers for currently available tobacco prevention programs. Social normalization and modeling due to the long existence of tobacco in the culture has long been recognized as a strong predictor to tobacco use among adolescents (Bandura, 1977; Bandura, 1986; Bidstrup et al., 2009; Al-Sadat et al., 2010; Schaefer and Haas, 2013; Menati et al., 2016; Sherman et al., 2016). The effect of having teachers who use tobacco, as a barrier to the effectiveness of tobacco use prevention program, was also identified in a similar study among educational providers and staff (Tahlil et al., 2013a). Since the adolescents continue to use tobacco products despite the abundant availability of preventive programs, there seems to be some significant barriers which need to be addressed.

The contents of an effective strategy

Among the essential contents of an effective tobacco use prevention program disclosed during the focus group discussions in this study include information on negative health outcomes, measures to deal with peer influence, religious education, negative economic impact, family value and parenting, legislation, self-efficacy, refusal skill, suggestion on alternative activities and stress management.

Information on the negative health outcomes has been included in all of the previous programs. Malaysian Ministry of Education (MOE) has been educating the school children on this aspect through the national curriculum for the primary school children starting from standard three (9 years old) and repeatedly until the secondary school (Mohamad, 2002; Jamaliyah et al., 2012; Sopia et al., 2013). All of the rigorously developed tobacco use prevention programs in Asia within the past three decades has included the knowledge on the negative health outcomes as an essential components in their program (Unger et al., 2001; Zheng et al., 2005; Chen et al., 2006; Chou et al., 2006; Lee et al., 2007; Wen et al., 2010; Bate et al., 2012; Lee, 2012; Chaikoolvatana et al., 2013; Ghrayeb et al., 2013; Tahlil et al., 2013b). Similar approach has also been used worldwide (Thomas et al., 2015). Although previous programs produced a mixture of outcome in terms of success, knowledge on the negative health effects of using tobacco is an essential component in a prevention strategy.

All of the adolescents in this study agreed to the significant role of peers in influencing the use of tobacco products among the youth. The role of peer influence has been recognised as the most significant factor contributing to the use tobacco products for a long time. Peer influence comes from many angles. They could be actively persuading and provoking others or passively exist in the environment by producing social normalization of behavior. According to the Social Learning Theory by Bandura, observational learning is the fundamental cause of smoking tobacco (Bandura, 1977; Bandura, 1986). In the Theory of Planned Behavior, behavior is determined by behavioral intentions which is readily influenced by the subjective norms created by the family or friends' perception. The same view was explained by Jessor and

Jessor (1977) through the Theory of Problem Behavior whereby tobacco use behavior is said to be a part of a system of psychosocial that influence one another (Jessor, 1991). The parental and friend normative beliefs in approving the tobacco use behavior influence its initiation among the youth (Jessor and Jessor, 1977). A study by Tahlil et al., (2013a) on exploring the educators and staff perception on the content of a prevention program reported the importance of teaching measures to avoid peer's influence, indirectly indicating that peer's influence is indeed a significant contributor to tobacco use among youth.

Apart from avoiding the perpretator, among the measures to overcome peer's influence revealed by the adolescents in this study are to improve strengthening self efficacy and refusal skill. Self-efficacy is a cognitive variable that refers to ones' beliefs regarding control over events in their lives (Bandura 1986). Those with low self-efficacy are unlikely to resist engaging in high risk behavior, whereas high self-efficacy individuals are more likely to resist such behavior. Importance of strengthening self-efficacy has been brought forward by the adolescents in this study. They believe that strong self-efficacy against the use of tobacco protects somebody from using tobacco product. The perception of the adolescents in this study seems to reflect the Social Learning Theory by Bandura (1977) who claimed low self-efficacy as a predictor of using tobacco product among those exposed to tobacco use by their family members or peers. Improving self-efficacy has been used as an outcome measurement in multiple studies on tobacco use prevention (DeVries et al., 1990; Lee et al., 2007; Stigler et al., 2007; Conner and Higgins, 2010; Lotrean et al., 2010; Morton and Montgomery, 2011; Choi et al., 2013). The role of self-efficacy in tobacco use initiation changes overtime wherewith a decrease over time is associated with initiation in adolescence. (Hiemstra et al., 2011). Thus, it is essential to strengthen perceived self-efficacy which in turns would determine one's feelings, thoughts, self-motivation and behavior.

In order to overcome the active provocation from the tobacco users, all the adolescents in this study agreed to the need to teach the younger adolescents on improving refusal skill. Educators and staff also feels that teaching refusal skill is an essential components in a prevention program (Tahlil et al., 2013a). Most studies on tobacco use prevention program includes refusal skill as the outcome measurement (Chen et al., 2006; Lee et al., 2007; Stigler et al., 2007; Wen et al., 2010; Bate et al., 2012; Chaikoolvatana et al., 2013; Tahlil et al., 2013b). On the contrary, very few actually included teaching refusal skills in their intervetion. According to Nichols, Birnel, Graber, Brooks-Gunn, Botvin (2010), refusal skill strategies are divided into verbal or non-verbal (Nichols et al., 2010). Verbal strategies include Simple No (just saying ''no''), Declarative Statements (declare their anti-smoking conviction), Excuses (give an excuse why they can't smoke), Alternatives (suggest an alternative activity to smoking) and Reverse the Pressure (reverse the pressure back onto the agitator by using sarcasm, insults, or challenges). Non-verbal skills include Assertiveness (firm, authoritative voice; speaking clearly and deliberately; direct eye contact; a serious and confident facial expression; and straight body posture, facing the confederate, creates an appropriate distance) and Effectiveness (effectively refuse the invitation in a real life situation) (Nichols et al., 2010). The role of having a strong refusal skill is essential to prohibit tobacco use hence a crucial component to increase resilience among the youth against tobacco use.

Response on enquiries on the need to include religious education in the preventive strategy produced a mixture of responses among the adolescents in this study. Those from the rural area seem to appreciate the value of religion to prevent tobacco use more than those from the urban area. These findings are consistent with a study looking at the effectiveness of a religious tailored prevention program in Acheh whereby religious-based program alone produced insignificant reduction in intention to use smoked tobacco (Tahlil et al., 2013b). On the other hand, the Social Attachment Theory by Elliott, Huizinga, Ageton (1985) postulated that attachments to conventional institutions including church are the keys to prevent deviant behavior (Elliott et al., 1985). However, the role of the religious place in prevention of tobacco use is unclear whether due to the religious teaching per se or the influence of the social normalization produced by the non-users. Therefore, the effect of integrating religious education is uncertain in improving the effectiveness of a tobacco use prevention program.

Delivery of an effective strategy

An effective mode of delivery is essential in ensuring a successful transfer of knowledge and skills to the target group. Responses to the question on how the information to prevent tobacco use be effectively delivered to the target group is consistent with our expectation from the current generation, the Generation-Z. Gen-Z are those who were born in or after 1990 which is known as the technology era (McCrindle, 2012). The members of this generation are unique since their birth coincides with the introduction of the internet making them internet searches and information technology (IT) literate. They would prefer to gain knowledge from the computers which would provide satisfactory live visuals and could interact with them (Geck, 2007; McCrindle, 2012). The adolescents in our study, being members of Gen-Z, suggested the use of video on the live evidence of the negative health outcomes from using tobacco products, interactive games, quiz, and video on refusal skills acted by real person. These findings agree with the Social Inoculation Theory by McGuire (1961) which postulated that exposing oneself to weakened counterarguments triggers a process of counter-arguing, which eventually produce resistance to later, stronger persuasive messages. On the contrary, the education providers and staff believe teachers, health professionals and religious leaders should be delivering the program providers through lectures, seminars and counseling sessions on top of visual aids and interactive teaching methods (Tahlil et al., 2013a).

Although interactive software and internet are not widely used in tobacco use prevention programs, it has been increasingly used in health education (Hutton et al.,

2011; Forsyth et al., 2013). The Malaysian Ministry of Health has recently made significant efforts in promoting health through the social media by using videos. On the other hand, currently available rigorously developed preventive strategies in Asia are being delivered through school based group activities (Chen et al., 2006; Chou et al., 2006; Lee et al., 2007; Wen et al., 2010; Chaikoolvatana et al., 2013; Tahlil et al., 2013b; Tahlil et al., 2015). Although there is no study to our knowledge comparing the effectiveness of education delivery between workshops and interactive software, the latter may produce a better result if the nature of the Gen-Z is taken into consideration.

The objective of this study was to explore the adolescents' perception on effective strategies to prevent their younger counterparts from using tobacco products. All adolescents living in the rural and urban area including the current users, ex-users and non-users of tobacco agreed to the need to develop a new program for the younger adolescents. Barriers of the currently available prevention program notified by them are having peers and teachers who smoke tobacco, poor clarity of current programs, the widespread use of tobacco products and self-perception for being healthy. The content of the program should include knowledge on negative outcomes of using tobacco products, ways to overcome peer and family influence together with improving self-efficacy and refusal skill. The strategy was suggested to be delivered using information technology.

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Declaration of Interests

The author and co-authors have no conflicts of interest to declare.

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